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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Patent Application of

Jianhui Chen et al.

Application No.: 09/927,068

Filed: August 9, 2001

For: COAXIAL ILLUMINATION SYSTEM

Group Art Unit: 2877

Examiner: G.J. Stock, Jr.

**DECLARATION OF DAVID M. AIKENS
UNDER RULE 131**353 Sacramento Street, Suite 2200
San Francisco, CA 94111
(415) 772-4900Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**CERTIFICATE OF MAILING**I hereby certify that this correspondence is being deposited
with the United States Postal Service as First Class Mail in an
envelope, addressed to: Commissioner for Patents, P.O.
Box 1450, Alexandria, VA 22313-1450 on May 28, 2004.
STALLMAN & POLLOCK LLPDated: 05/28/2004By: Georgia K. Stith

Georgia K. Stith

Sir:

I, David M. Aikens, declare as follows:

1. I am a named inventor of the above-identified patent application.
2. I was employed as the Optics Department Manager at Therma-Wave, Inc., the assignee of the above-identified patent application, during the period from May of 2000 to May of 2002. I was employed by Therma-Wave, Inc., during all the events discussed herein.
3. In the time period prior to May 2, 2001, I was responsible for optical system engineering for a next generation optical metrology tool in Therma-Wave's Opti-Probe product line. My responsibilities included managing all optical design and engineering resources for the company, as well as overseeing the product engineering management of the new product development for next generation Opti-Probe tools.

4. I worked with Jianhui (Jay) Chen, the other named inventor herein, to develop the conceptual layout for the light source. I then worked with, and supervised, other Therma-Wave, Inc., employees in identifying the specific design requirements; optics specifications, optical position tolerancing, required adjustments, thermal requirements, and other engineering aspects for the new light source.
5. During the initial development of the new lightsource, it became clear that Jay and I had invented a new form of lightsource, nicknamed COILS, for coaxial illumination system. Some time before February 20, 2001, I was assigned with writing up the draft record of invention (ROI) for the light source. My day planner has repeated references for several months prior to May 2, 2001 to the required task of COILS ROI, which was deferred due to more pressing tasks. Exhibit 1 *a* through *d* are the first four references to the task found in my planner.
6. Exhibit 2 attached hereto is a drawing generated of the engineering design prior to May 2, 2001. This drawing was prepared prior to May 2, 2001, as part of the light source requirements design review. The letters (A-F) identifying various elements have been added to this drawing to facilitate this discussion. This design corresponds to the invention being claimed in the above-identified application. Exhibit 3 is a copy of an earlier submitted declaration of Ward R. Dixon, the engineer responsible for generating the drawing for the design review.
7. Referring to Exhibit 2, item A, in the lower left corner is the housing for a tungsten lamp. Item B is the location of the lens used to image the tungsten bulb into the transparent housing of deuterium lamp, item C. Item D is a focusing mirror which focuses an image of both the tungsten and deuterium lamps onto an aperture located at item E. Item F is a focusing mirror which converts the diverging light beam into a collimated beam. The collimated beam is then directed to optics (not shown) for focusing the beam onto the sample.

8. Exhibit 3 shows two pages (20, 21) from the notebook of Ward R. Dixon. These notebook pages represent testing that was done by Therma-Wave, Inc., under my supervision, on a light source having the configuration of Exhibit 2. The data on these pages was taken prior to May 2, 2001.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under 18 U.S.C. § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: _____

5/23/04

By: _____

David M. Aikens

Exhibit 1 a,b

a)

20

Tuesday

February 2001

S M T W T F S

✓ Task Completed
→ Planned Forward
✗ Task Deleted
G Delegated Task
● In Process

↓ ABC Prioritized Daily Task List

- ✓ B1 Reply to Joe Wong
- A11 Rick mtg to discuss MTE resources
- A10 Neptune pilot labor plan
- CD wage?
- B2 FCN- MRD
- A4 Finance - Nept.
- A7 Stech. Bob Lunch
- A5 IFO closure labor
- A8 Check on Pat. Wong Rossi
- A6 Schedule of Chris Ernie
- A9 Re-plan Nept. Milestones (AF option?)
- B4 Plan to Kill Genmark in Field.
- ✓ A1 I Paper w/ Samsung
- B3 ROT on COILS
- A6 Glencoe - Stripoli?
- ✓ A4 @ Henry
- A12 GS-'s in Eng. Inv.
- A5 Check w/ Bob O
- A13 Find Gany in ICS3
- ✓ A2 @ Regina
- A3 Planner Update
- Celebr NPI 9:00 Th.

Daily Expenses

b)

21

Wednesday

February 2001

S M T W T F S

✓ Task Completed
→ Planned Forward
✗ Task Deleted
G Delegated Task
● In Process

↓ ABC Prioritized Daily Task List

- Princeton Wang obj.
- Supply Matrix
- ① Bill Castle
- Plan of OSC
- A3 S/W - create Nept J. Font Jupiter's, 3290's
- Foundry Pol on List of Priorities
- B Plan Fwd
- ✓ A1 Fix Milestones (ours, theirs)
- ✓ A2 Fix Resources
- COILS Disruptive

Daily Expenses

Exhibit 1 c,d

27

Tuesday

February 2001

S M T W T F S

✓ Task Completed
→ Planned Forward
× Task Deleted
G⊙ Delegated Task
• In Process

↓ ABC Prioritized Daily Task List

Trust to Troops
Nopture H/W cleared out
Scatter Mark
Gaussians w/ Hard Aps
OOSC
COILS
Plan Fwd
Eliminate E-Mail
SE Procedure
Jays Charts
✓ Resource & S. up to date (SST Nept)
✓ Nelson - talk to Chris & Rodd
Alan device net NOT consistent w/ the net
✓ 7:15 Dave's coffee north end of main st.

Daily Expenses

d.)

1

Thursday

March 2001

S M T W T F S

✓ Task Completed
→ Planned Forward
× Task Deleted
G⊙ Delegated Task
• In Process

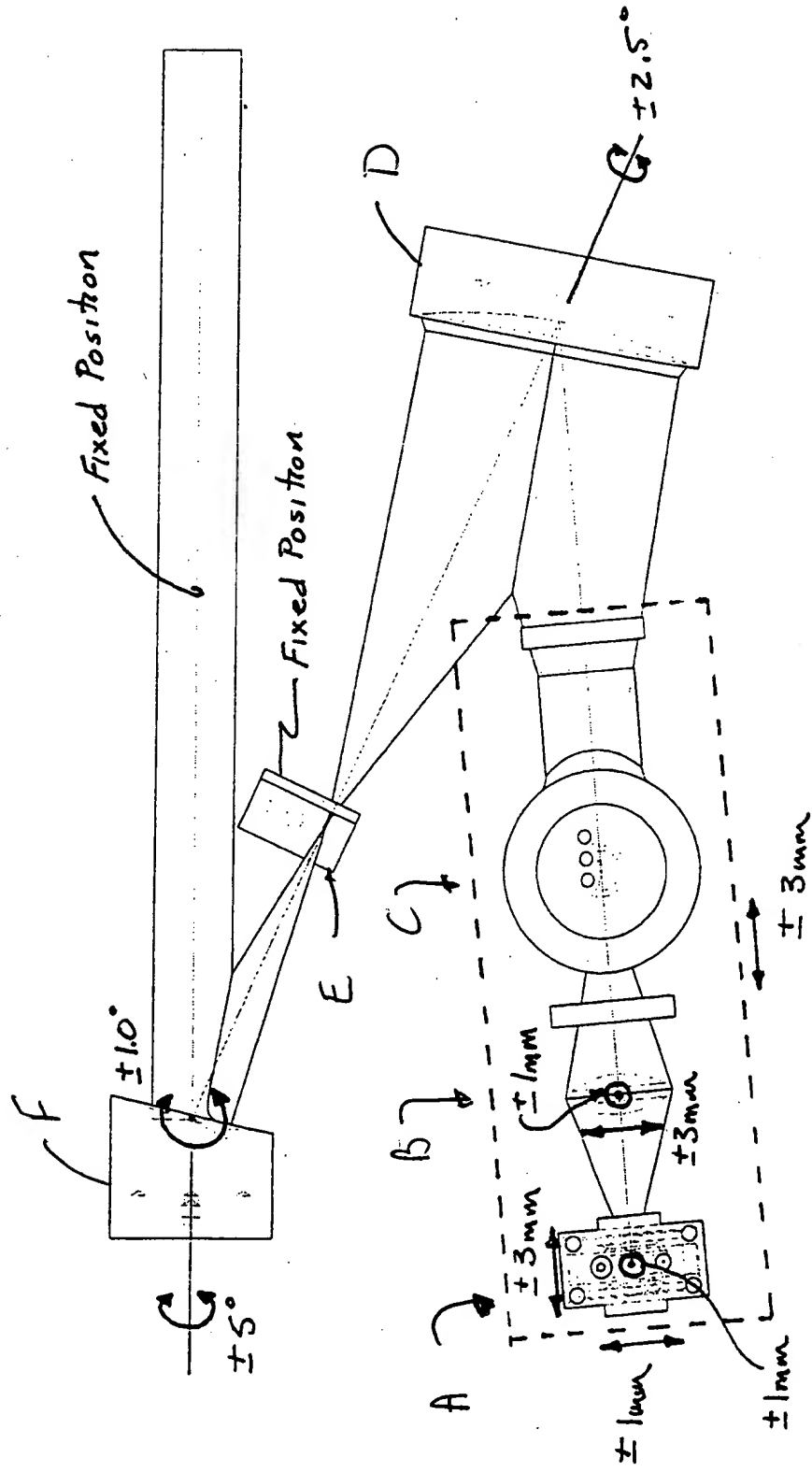
↓ ABC Prioritized Daily Task List

✓ Pizza for (R)
→ OPTS/Strat
✓ COILS Discl.
✓ Rejo Gapand.

Daily Expenses

Neptune UV and White Light Source Redesign

Added Adjustments



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Jianhui Chen et al.

Application No.: 09/927,068

Filed: August 9, 2001

For: COAXIAL ILLUMINATION SYSTEM

Group Art Unit: 2877

Examiner: G.J. Stock, Jr.

**DECLARATION OF WARD L. DIXON
UNDER RULE 131**121 Spear Street, Suite 290
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(415) 512-1312Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450**CERTIFICATE OF MAILING**I hereby certify that this correspondence is being deposited
with the United States Postal Service as First Class Mail in an
envelope, addressed to: Commissioner for Patents, P.O.
Box 1450, Alexandria, VA 22313-1450 on Nov. 4, 2003.

STALLMAN & POLLOCK LLP

Dated: 11/4/2003

By:

Georgia K. Stith

Sir:

I, Ward R. Dixon, declare as follows:

1. I am currently the Mechanical Engineering Manager at Therma-Wave, Inc., the assignee of the above-identified patent application. I was employed by Therma-Wave, Inc., during all the events discussed herein.
2. In the time period prior to May 2, 2001, I was responsible for the optical and mechanical engineering for a next generation optical metrology tool in Therma-Wave's Opti-Probe product line. I worked under the direction of the program manager, Jianhui (Jay) Chen, one of the named inventors herein. In this capacity, one of my tasks was the implementation of a light source design. My responsibilities included detailed engineering design, generating the drawing package, ordering parts, and assembly, alignment and testing of the design.
3. I was originally given the conceptual layout for the light source by Jay Chen. I subsequently worked under the direction of both Jay and David Aikens (the other named inventor) to identify the specific design requirements; optics specifications, optical position tolerancing, required adjustments, thermal requirements, etc. I then worked under the guidance

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PATENT

-2-

of Jay Chen to develop the detailed engineering design. Neither Jay Chen nor David Aikens is employed by Therma-Wave at the present time.

4. Exhibit 1 attached hereto is a drawing I generated of the design I was working on prior to May 2, 2001. This drawing was prepared prior to May 2, 2001, as part of the light source requirements design review. The letters (A-F) identifying various elements have been added to this drawing to facilitate this discussion. This design corresponds to the invention being claimed in the above-identified application.

5. Referring to Exhibit 1, item A, in the lower left corner is the housing for a tungsten lamp. Item B is the location of the lens used to image the tungsten bulb into the transparent housing of deuterium lamp, item C. Item D is a focusing mirror which focuses an image of both the tungsten and deuterium lamps onto an aperture located at item E. Item F is a focusing mirror which converts the diverging light beam into a collimated beam. The collimated beam is then directed to optics (not shown) for focusing the beam onto the sample.

6. Exhibit 2 is two pages (20, 21) from my notebook. These notebook pages represent testing I did on a light source having the configuration of Exhibit 1. The data on these pages was taken prior to May 2, 2001.

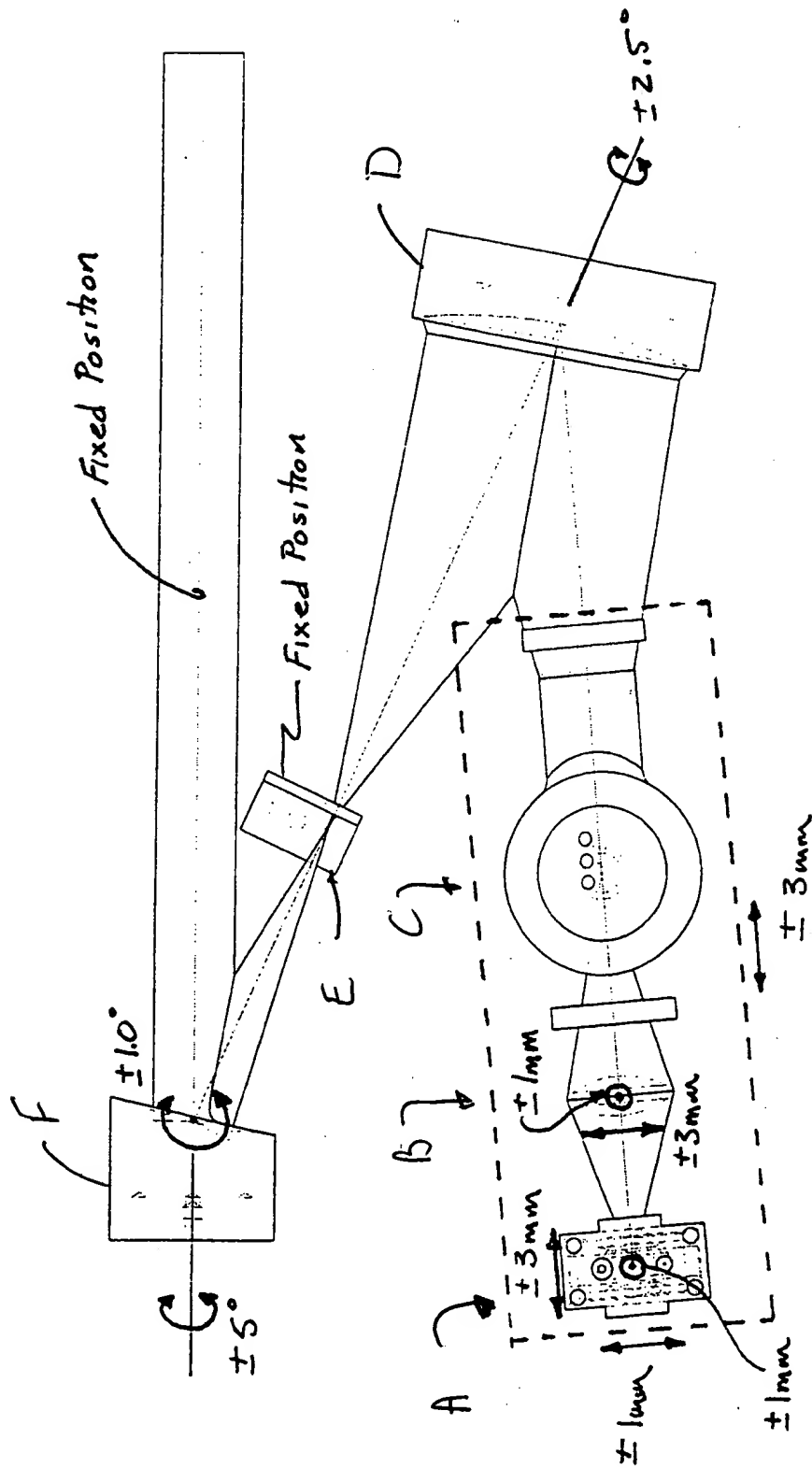
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under 18 U.S.C. § 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: 3 - Nov. - 2003

By: Ward R. Dixon

Ward R. Dixon

Neptune UV and White Light Source Redesign Added Adjustments



COPY

New Light Source (P/N 18-25672)

UV-on, WL-on, Fan-on upper tube

<u>Time</u>	<u>Bulb Temp</u>
0	20°C
3	205°C
5	265°C
10	304°C
20	315°C

Moved Fan hose to lower tube @ 20 min

<u>Time</u>	<u>Bulb Temp</u>
25	311°C
30	308°C
40	311°C

Removed filter window from rear side of UV bulb.

<u>Time</u>	<u>Bulb Temp</u>
0	19°C
5	205°C
8	247°C
31	257°C

Replaced filter window at rear side of UV bulb

Added buffer



<u>Time</u>	<u>Bulb Temp</u>
6	18°C
1	168°C
2	228°C
5	289°C
46	319°C

COPY

Move fan to lower exhaust @ 46 min

<u>Time (min)</u>	<u>Bulb temp</u>
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51	26.9 °C
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70	26.8 °C
----	---------

180 min	26.9 °C
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COPY